



PrSh -01-ONE DIMENSIONAL MOTION-L-1

- Displacement is a
  - tensor
  - scalar
  - Hector
  - Vector
- For one-dimensional motion displacement is the change in position and is given by
  - $\Delta x = x_2 - x_1$
  - $\Delta x = (x_2 + x_1) / 2$
  - $\Delta x = x_2 + x_1$
  - $\Delta x = 2(x_2 + x_1)$
- Path length is defined as
  - distance from origin to origin.
  - the total length of the path traversed by an object.
  - the distance from origin to maximum point.
  - the distance from origin to minimum point.
- A golf ball is released from rest from the top of a very tall building. Calculate the position in m of the ball after 2.00 seconds. ( $g=9.8\text{m/s}^2$ )
  - 32.1
  - 20.9
  - 19.6
  - 22.2
- If the distance covered is zero, the displacement
  - may or may not be zero
  - cannot be zero
  - must be zero
  - depends upon the particle
- A cyclist moves in such a way that he takes  $60^\circ$  turn after 100 m. What is the displacement when he takes the seventh turn?
  - $100\sqrt{3}$  m
  - 100 m
  - 200 m
  - $\frac{100}{\sqrt{3}}$  m
- A cyclist starts from the centre O of a circular park of radius one kilometre, reaches the edge P of the park. Then cycles along the circumference and returns to the centre along QO as shown in the figure. If the round trip takes ten minutes, the net displacement and average speed of the cyclist (in metre and kilometre per hour respectively)



truck travels for 20.0 s at a constant speed until the brakes are applied, stopping the truck in a uniform manner in an additional 5.00 s. What is the average velocity in m/s of the truck for the motion described?

- a) 15.7  
b) 17.5  
c) 154  
d) 16.2
15. A stone dropped from the top of the tower touches the ground in 2 sec. The height of the tower is about: ( $g=10\text{m/s}^2$ )  
a) 40 m  
b) 25 m  
c) 160 m  
d) 20 m
16. A scooter accelerates from rest for time  $t_1$  at constant rate  $a_1$  and then retards at constant rate  $a_2$  for time  $t_2$  and comes to rest. The correct value of  $\frac{t_1}{t_2}$  will be  
a)  $\frac{a_2}{a_1}$   
b)  $\frac{a_1+a_2}{a_1}$   
c)  $\frac{a_1+a_2}{a_2}$   
d)  $\frac{a_1}{a_2}$
17. An athlete completes one round of a circular track of radius R in 40 seconds. What will be his displacement at the end of 2 minutes 20 seconds?  
a)  $7\pi R$   
b)  $2\pi R$   
c) Zero  
d)  $2R$
18. A ball is dropped on the floor from a height of 10 m. It rebounds to a height of 2.5 m. If the ball is in contact with the floor for 0.01 sec, the average acceleration during contact is:  
a)  $1400\frac{\text{m}}{\text{sec}^2}$   
b)  $2100\frac{\text{m}}{\text{sec}^2}$  upwards  
c)  $700\frac{\text{m}}{\text{sec}^2}$   
d)  $2100\frac{\text{m}}{\text{sec}^2}$  downwards
19. The change in position or displacement ( $\Delta x$ ) divided by the time intervals ( $\Delta t$ ), in which the displacement occurs is known as  
a) acceleration  
b) average acceleration  
c) speed  
d) average velocity
20. Instantaneous velocity or simply velocity  $v$  at an instant  $t$  equals  
a)  $\lim_{t \rightarrow \infty} \frac{\Delta x}{\Delta t}$   
b)  $\lim_{\Delta t \rightarrow 0} \frac{\Delta x}{\Delta t}$   
c)  $\lim_{t \rightarrow 0} \frac{\Delta x}{2\Delta t}$   
d)  $\lim_{t \rightarrow 1} \frac{\Delta x}{\Delta t}$